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Impact of Earings per Share on Stock Price Volatility: A Study of Listed Companies on Nairobi Securities Exchange in Kenya.

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Abstract
Investment decisions by investors depends on stock price volatility. Earning per share is commonly used for showing the performance of a company to investors and financial analysts.This study therefore intended to investigate the impact of earnings per share on share price volatility of listed firms on the Nairobi securities exchange in Kenya. The study period was from 2008 to 2019. Data for this study was extracted from annual reports of listed companies and the Nairobi stock exchange handbook. Inclusion and exclusion sampling method was used to obtain the sample for the study. The dependent variable is stock price volatility, earnings per share is the independent variable whereas firm size, growth and leverage are the control variables. The outcome documents that earning per share is negatively related to share price volatility and is statistically significant. Based on the results of the study, it is evident that earning per share affect the share price volatility offirms in Kenya.The results also revealed that firm size and firm growth are negatively related to share price volatility and significant leverage is negatively related share price volatility though insignificant.The study therefore concludes that earnings per share impact share price volatility of listed companies on Nairobi securities exchange in Kenya.

Key words:Earnings per Share, Stock price volatility, Nairobi securities exchange

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I. Introduction

There are many investment activities on the Nairobi securities exchange, but the question is whether these investors have knowledge sufficient information about the stock market and the share price variability. The investors are likely reduce their earnings ability if they are not keen on these fluctuations on the securities exchange.

Share price volatility is where stock prices deviates in index from average level to upward or downward. Such upward and downward trends are re-pronounced as bullish and bearish trends of stock prices. Such trends occurs because of various activities interplayed by companies within their operation (Chaudry, 2015). The volatility of prices refers to the amount of variability and uncertainty in predicting changes in stock prices. The high price volatility indicates that the value of shares can theoretically be extended to cover a wide range of values, and this means that the stock price can change dramatically within a short time horizon in direction (Ramadan, 2013).Investors, brokers, dealers, academics and regulators all concern about and their stock price volatility in the stock prices.

Earnings per share is among the tools used by the various stakeholders to evaluate firm's performance either in the short or long term. Earnings indicate whether the business will be profitable and successful in the long run. Ultimately, a business's earnings are the main determinants of its share price. Earnings represent a measure of the change in the value of the firm to common equity shareholders during a period. The estimated earnings can be used to measure the financial health and prospect of a company. Earnings per share is defined as the portion of a company's profit allocated to each outstanding share of common stock.

According to Shah, (2016), fluctuation in share prices is positively related to earnings per share.It means higher the earnings per share in firms, the more volatility in their stock prices. The implication is that earnings of firms have positive relationship with share prices and in a broader perspective it was presented that earnings of companies have positive relationship with share prices and eventually with their volatilities.

The main financial goal of any investor is maximization of shareholder wealth as reflected in the market value of the firm's share price in the market. Share price volatility therefore becomes a benchmark for measuring risk because it indicates the changing pace in the share price over a determined period of time. This study's attempt was to scrutinize how earnings per share affect the share price volatility of listed firms on

Nairobi securities exchange in Kenya. The study was interested in establishing the practical hands-on conduct of Kenyan investors regarding earnings per share on share price volatility.

II. Literature

According to Kashmir (2012), the primary goal of any firm is to achieve profit, which is a measurement of the company's performance. Investors take an interest in companies with high profits because it means that the company is able to take care of its investors' welfare. Earnings per share is defined as the company's profit based on the company's outstanding shares. Therefore, earnings per share is a measurement of management's success in profit making for the company's shareholders. Kamisah et al. (2012) posits that there is a correlation between earnings per share and a company's stock price, indicating that increase in interest by the investor leads to an increase in the company's stock price and vice versa.

III. Empirical Review

Tandon (2013) sought to find out the relationship between earnings per share and price earnings ratio on market price of selected firms listed on NSE-100 and found that earnings per share and price earnings ratio impact significantly on market price. Similarly Rama (2013) found that share prices are significantly affected by fluctuations in earnings per share. Dissanayake&Wickramasinghe(2016), examined the impact of earnings per share on stock prices in companies listed on Colombo Stock Exchange and established that more than 70% of the listed companies are related positively as far as earnings per share and share price are concerned. In trying to establish empirical evidence from Pakistan, on stock price volatility and role of dividend policy, Shah & Noreen (2016) found significant positive relationship between earnings per share and share price volatility. Also, Zakaria*et al.* (2012) while examining the impact of dividend policy on share price volatility in Malaysia construction and material companies found that leverage negatively influence the movement of share price in Malaysia.

Kalama, (2013), also found that there is a positive and significant relationship between Earning per Share (EPS) and stock price of the companies listed on Nairobi securities exchange. While examining the determinants of share prices of companies listed on Kuwait stock exchange, Al-Deehani (2005) showed that earnings per share and dividend per share are highly correlated with share prices. A study by Masum, (2014), established that earnings per share impact greatly on stock price volatility in Nigeria compared to other determinants of volatility. Further, Hunjra*et. al.*(2014) concluded that earnings per share has a significant positive impact on stock price volatility. A study by Hashemijoo*et al.* (2012), that investigated the relationship between stock price volatility and financial ratios among them leverage and firm size found a negative and significant relationship between share price volatility and firm size. Another study by Ahmed (2018), on the impact of dividend policy and earnings per share in Pakistan textile sector found that dividend per share and earnings per share have positive and significant impact on stock prices.

Lashgari&Ahmadi (2014), researched on the impact of dividend policy and share price volatility in Tehran and found that leverage, and firm size have no significant impact on share price volatility. In a similar study, AL-Shawawreh (2014) in Jordanian stock exchange reported that there is a positive and significant relationship between firm size and share price volatility.Haque *et.al.*(2019) on dividend policy and share price volatility in Australia's Dhaka Stock Exchange found that among the control variables in the model, firm size has got significant negative impact on share price volatility whereas,leverage has a positive insignificant impact on share price volatility.

IV. Theoretical Review

Efficient Market Hypothesis

Studies pioneered by Fama, (1970) on efficient market hypothesis postulate thatshare prices fully reflect all the accessible information available in the market. The implication is that, any new announcement and any essential information will be reflected in the share prices immediately.Market efficiency theory does not assume that the capital markets are sagacious, nor does it assume market prices areprophetic.Instead the theory is a matter of degree, which describes how much information on prices is reflected and how quickly prices react in reaching the equilibrium levels.According to Saleh, (2020) efficiency of a market can be present in three forms: weakform, semi-strong form and strong form.Weak form occurs when prices reflect only information on historical share prices. Whereas the semi-strong form occurs when prices reflect all publicly accessible information such as earnings forecasts and dividend payments and proposals. Finally, the strong form occurs when the market prices are set under the influence of historical and public information together with the influence of private information and confidential information accessed by some group of investors.

Signaling Hypothesis

There is a tendency for management to have more precise and timely information about their organizations than the outside investors. Therefore, there is information asymmetry between managers and the investors. To bond this fissure, management use earnings per share among other tools to transfer private information to shareholders(AL-Malkawi, 2007).

According to the signaling theory, Earnings announcements are among the important signaling devices managers employ to transmit information to shareholders and investors about the organization's financial health and future prospects.Since earnings announcements are one of the precarious components of testing market efficiency, it provides a yardstick that can be utilized to assess the wealth and profitability of a firm(Mrzyglod& Nowak 2017).

V. Research Hypothesis.

The study tested the following hypothesis;

Hypothesis 1

H_0: There is no relationship between earnings per share and share price volatility.

H_a:There is a relationship between earnings per share and share price volatility.

Hypothesis 2

H_0: There is no relationship between leverage and share price volatility.

H_a: There is a relationship between leverage and share price volatility.

Hypothesis 3

H_0: There is no relationship between firm size and share price volatility.

H_a: **There** is a relationship between firm size and share price volatility.

Hypothesis 4

H_0:There is no relationship between firm growth and share price volatility.

H_a: There is a relationship between firm growth and share price volatility.

VI. Methodology

Data for this study was collected from secondary sources.Data was sourced from published annual statements of the listed firms on the Nairobi securities exchange and the Nairobi securities exchange annual hand book from 2008 to 2019. The collected data was interpreted and simplified to make them eligible for research. In this study, data was analyzed by employing descriptive and inferential analyses.

VII. Operationalization of Variables

Operationalization of variables describes what the variables mean and how they are measured.

Table 1:

variable	Nature	Definition	Measurement
Earnings per share	Independent	Earnings per share or EPS is an important financial measure, which indicates the profitability of a company.	Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares Al (Momani, *et.al* 2021).
Share price volatility	Dependent	Share price volatilityis a rate at which the price of a security increases or decreases for a given set of returns.	The annual range of extreme stock prices (i.e., the difference between yearly highest and lowest prices) is divided by their midpoint (i.e., the average of the highest and lowest prices), and then raised to the second power. A square root transformation is applied to provide a volatility measure comparable to a standard deviation (Camilleri *et.* al, 2019).
Firm size	Control	The size of a business unit means the size of a business firm. It means the scale or volume of operation turned out by a single firm.	Natural logarithm of total assets (D'Amato&Falivena, 2020).
Firm growth	Control	Firm growth occurs when firms increase their size, usually measured in terms of sales, employment, profits or value added. Firm growth may involve replication or diversification into new markets(e.g., internationalization), and can occur through organic growth or acquisition.	The rate of the change in total assets between the beginning of the year and the end of the year (Suwanhirunkul, &Masih 2018).
Leverage	Control	Leverage is the use of debt by a company to fund its operations and expansion projects in an effort to generate a return for shareholders.	The financial leverage formula is equal to the total of company debt divided by the total shareholders' equity. (Al-Slehat, *et. al* 2020).

VIII. Data Estimation

This study comprisedfirms that are listed on Nairobi securities exchange from 2008 to 2019. This study period is chosen bearing in mind that the period witnessed the effect of 2008 financial crisis and the year 2008 marks the onset of complains handling unit that was established by Nairobi securities exchange to facilitate feedback to queries raised by investors.To be included in the sample, a firm had to meet the following criteria: a)The firm had to have been continuously listed on Nairobi securities exchange from 2008 and b), the firm had to have declared its annual financial statements in the period of study (2008 to 2019).Based on the above criteria a total of 39 companies were selected for the sample of this study.

IX. Model Specification

This study adopted a theoretical framework similar to the one pioneered by Baskin, (1989) and several recent scholars such as Sharif *et al.*(2015), Shar&Noreen, (2016),Hamid *et* a*l.*(2017) and Zainudin*et al*. (2018) among others. Earnings per share was one of the variables used in the abovestudies. Further, the above studies were done in emerging markets like Kenya. Theregression was done with stock price volatility being the dependent variable and earnings per share being the independent variable. Similar to Baskin (1989), firm size, firm growth and leverage are used as control variables. The regression equations are as follows:

$\mathbf{SPV_{it}}=f\ (EPS_{it,}SIZ_{it,}GRO_{it,}\ LEV_{it})$

1. Panel regression model is 1 Panel regression model is :

$\mathbf{SPV_{it}} = + \beta 1\ EPS_{it} + \beta_2 SIZ_{it} + \beta_3 GRO_{it} + \beta_4 LEV_{it} + \varepsilon_{it.}$

2. Fixed effect model is: $\mathbf{SPV_{it}} = \alpha i + \beta 1\ EPS_{it} + \beta_2 SIZ_{it} + \beta_3 GRO_{it} + \beta_4 LEV_{it} + u_{it.}$

3. Random effects model is: $\mathbf{SPV_{it}} = \mu + \beta 1\ EPS_{it} + \beta_2 SIZ_{it} + \beta_3 GRO_{it} + \beta_4 LEV_{it} + U_i + W_{it} + V_{it}$

4. Where;

$\mathbf{SPV_{it}}$ =Stock prices of company *i*at time *t.*

EPS_{it} =Earnings per share of company *I* at time *t.*

SIZ_{it} = Firm size of company *i* at time *t.*

GRO_{it} =Firm Growth of company *I* at time *t.*

LEV_{it} =Leverage of company *i* at time *t.*

U_i = Company –specific random effect.

W_{it} = Individual-specific random effect refers to the deviation in share price at time t from the average of i^{th} company.

$\varepsilon_{it.}$ = Error term of company I at time t.

αi = Company – specific intercepts that capture heterogeneities across companies.

μ = Average share price of the entire companies listed on the Nairobi securities exchange.

X. Results and Findings

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
A	0				
YEAR	468	2013.5	3.455747	2008	2019
SPV	468	.1556539	.1368722	0	1.343
LEV	468	.352933	.5041577	.0025	2.769
EPS	468	8.194314	15.16681	-46.79	100
SIZE	468	6.992144	.6682681	4.51	8.0672
GR	468	.1235174	.2196475	-.6103	1.5788

Table 1 gives a snap of descriptive statistics of independent and dependent variables of the study. The rows show mean, median, minimum, maximum and standard deviation of the values of all the variables used in the study. The mean value of stock price volatility is0.1557.The dependent variable stock price volatility has a maximum of 1.343 and a minimum of 0 which expresses arrange of 1.343 and a standard deviation of 0.1369. The range and standard deviation values represent stock price fluctuations during the year. The independent variable Earnings per share has a mean of8.1034.It has a maximum of 100 and a minimum of -46.79.Earnings per share has a range of 146.79 and a standard deviation of 15.1668. Firm size has a mean of 6.992144, a standard deviation of 0 .6682681, a minimum of 4.51 and a maximum of 8.0672.Leverage has a mean of .352933, a standard deviation of .5041577, a minimum of .0025 and a maximum of 2.769.Firm growth has a mean of .1235174, a standard deviation of .2196475, a minimum of -.6103 and a maximum of 1.5788.

Table 2: Correlation Analysis

	SPV	LEV	EPS	SIZE	GR
SPV	1.0000				
LEV	-0.1910	1.0000			
EPS	-0.3636	0.3706	1.0000		
SIZE	-0.1571	0.2264	0.0653	1.0000	
GR	-0.1677	0.0754	0.1196	0.1455	1.0000

Table 2 shows the correlation analysis of the variables of this study. The table explains the relationship between the dependent variable and the independent variable. Correlation analysis also portrays thecourse correlation analysis portrays between the explanatory variable-stock price volatility and independent variable - earnings per share. From Table 2 it can be seen that the dependent variable stock price volatilityis negatively related to the regressor variable-Earnings per share (-0.3636). This result is in line with the results Mayuri& Mary (2017) who found that there is a significant negative impact of earnings per share on share price volatility at the significant level of 0.05.Conversely, this result contradicts the findings of Shah, (2016) and Hunjra*et al.*(2014) that reported a positive correlation between earnings per share and stock price volatility among other studies. Moving on to control variables, firmsize and leverage are negatively correlated to share price volatility at -0.1571, and-0.191whereas firm growth also has a negative relationship with share price volatility which is contrary to findings of the previous studies (Mayuri& Mary (2017),Shah, (2016) and Hunjra, *et. al* (2014).

Model Significance (Hypothesis Testing)

Variable	Fixed Effect Model		Random Effect Model	
	Coefficient	P-Value	Coefficient	P-Value
C	0.6593	0.000	0.5005	0.000
EPS	-0.00065	0.087	-0.00097	0.009
FirmGrowth	-0.0531	0.006	-0.054	0.005
Firm Size	-0.7051	0.001	-0.047	0.004
Leverage	0.0036	0.814	-0.0041	0.777
R-Squared	0.0598		0.0993	
F-Statistic	0.000		0.000	
Dubin Watson				
CHI-SQ Statistic			28.48	

We performed the fixed effect regression model and the random effect model on the basic model and finally the Haussmann test.The results of Haussmanntest revealed that the random effect model is suitable for this study. The random effect model shows that Earnings per share has a significant negative relationship with share price volatility at 5% significant level. This implies that the Null hypothesis that there is no relationship between earnings per share and share price volatility is rejected in favor of the alternative hypothesis that there is a relationship between earnings per share and share price volatility.These results contradict earlier findings by Kalama (2013), Hunjra, *et al.*(2014),Masum (2014) Dissanayake&Wickramasinghe(2016) and Ahmed (2018)) who concluded that earnings per share has a significant positive impact on stock price volatility. However the findings are in agreement with those of that established that earnings per share has negative relation with stock prices and significantly explains variations in market prices of shares. The random effect model also shows that firm growth and firm growth are significant and negatively related with stock price volatility. This results are in line with those of Hashemijoo*et al.* (2012),Mayuri& Mary (2017), andHaque *et.al.* (2019) who found that firm size has a negative and significant relationship between share price volatility and firm size.Contrary to the above findings, Lashgari&Ahmadi (2014) and AL-Shawawreh (2014), found that firm size have no significant impact on share price volatility. The F-statistic value is 000, which shows the fitness of the model. The results also show that leverage is insignificant and negatively related to share price volatility. This is in line with result of Zakaria*et al.* (2012) .The results also reveal that share price volatility is explained about 9.93% by earnings per share.

XI. Conclusion

The empirical result of this study show that earning per share is a main factor which creates major impact on the stock prices of the company. This study revealed that there is a significant negative relationship between earnings per share and stock price volatility. The results also revealed that firm size and firm growth are negatively related to share price volatility and significant leverage is negatively related share price volatility though insignificant.The study therefore concludes that earnings per share impact share price volatility of listed companies on Nairobi securities exchange in Kenya. Also Earnings per share should be consideredby the various stakeholdersof listed companies on Nairobi securities exchange in Kenya to evaluate firm's

performance either in the short or long term.It is recommended that this study should be extended to other countries using different time–periods and use different variables not utilized in this study to obtain robust results on this topic.

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